




# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,269	11/19/2003	Wayne Glenn Renken	SENS.008US3	9982
36257	7590	08/15/2005	EXAMINER	
PARSONS HSUE & DE RUNTZ LLP 655 MONTGOMERY STREET SUITE 1800 SAN FRANCISCO, CA 94111			HOLLINGTON, JERMELE M	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/718,269	Applicant(s) RENKEN ET AL.	
	Examiner Jermele M. Hollington	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.  
2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.  
4a) Of the above claim(s) 17-44 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-3, 9-14 and 45-53 is/are rejected.  
7) ☒ Claim(s) 4-8 and 15 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/05, 07 &amp; 11/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Double Patenting*

1. Claims 1-16 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-16 of copending Application No. 10/837,359. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seita (6808352) in view of Smesny et al (5444637).

Regarding claim 1, Seita discloses [see Figs. 2 and 8] a sensing apparatus [see **Note** below] where a standard substrate (not numbered but shown in Fig.8) is transported in a standard substrate carrier (wafer carrier 100 of Fig. 8) that establishes a position of the standard substrate

Art Unit: 2829

relative to a surface of the standard substrate carrier (100 of Fig. 8) and where the robot (top of carrier shell 1) of at least one processing tool is calibrated to the position of the standard substrate (shown in Fig. 8) relative to the surface of the standard substrate carrier (100 of Fig. 8), comprising: a first portion that includes: a substrate (19); a second portion that includes: a substrate carrier (100) that establishes the position of the first portion relative to a surface of the substrate carrier (100) to be the same as the position of the standard substrate (in Fig. 8) relative to the surface of the standard substrate carrier (100 of Fig. 8); an electronics module (robot 3) that communicates with the first portion, the electronics module (3) attached to the substrate carrier (100); and wherein the first portion may be moved independently of the second portion. However, he does not disclose a plurality of sensors attached to the substrate as claimed. Smesny et al disclose [see Figs. 1-2] a sensing apparatus comprising a first portion that includes: a substrate (substrate 10) and a plurality of sensors (sensors 12) attached to the substrate (10). Further, Smesny et al teach that the addition of plurality of sensors attached to the substrate is advantageous because the sensors are configured to detect processing condition by read, store and retrieve conditions registered within each region of the substrate. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus of Seita by adding a plurality of sensors on the substrate as taught by Smesny et al in order to detect processing condition by read, store and retrieve conditions registered within each region of the substrate.

[Note: the recitation “for sensing conditions in target environments in a processing facility” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural

Art Unit: 2829

limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).]

Regarding claim 2, Seita discloses the substrate carrier (100) is a standard substrate carrier [see col. 5, lines 1-4].

Regarding claim 3, Seita discloses the position of the standard substrate (shown in Fig. 8) relative to the surface of the standard substrate carrier (100 of Fig. 8) is the vertical height of the standard substrate above the bottom surface of the standard substrate carrier (100 of Fig. 8).

Regarding claim 9, Seita discloses [see Fig. 5] a pattern on at least one surface of the substrate (19); and an optical reading apparatus (substrate processing systems 21) attached to the substrate carrier (100) that reads the pattern on the substrate (19) to determine the orientation of the substrate (19).

Regarding claim 10, Seita discloses the second portion further comprises an alignment module (retainer 11) that aligns the first portion relative to the substrate carrier (100).

Regarding claim 11, Seita discloses a sensing apparatus for-sensing processing conditions in a processing tool (carrier shell 1) that has a robot (OHT 20) that transfers a standard substrate (shown in Fig. 8) between a standard substrate carrier (100 in Fig. 8) and a process chamber (substrate processing systems 21), comprising: a process condition measuring device, comprising: a substrate (substrate 19); a handling system, comprising: a substrate carrier (wafer carrier 100) that holds the process condition measuring device, the robot (OHT 20) transferring the process condition measuring device between the substrate carrier (100) and the process chamber (21), and an electronics module (3) attached to the substrate carrier (100) that communicates with the process condition measuring device while the substrate carrier (100) holds the process condition measuring device. However, he does not disclose a plurality of

Art Unit: 2829

sensors attached to the substrate as claimed. Smesny et al disclose [see Figs. 1-2] a sensing apparatus comprising a first portion that includes: a substrate (substrate 10) and a plurality of sensors (sensors 12) attached to the substrate (10). Further, Smesny et al teach that the addition of plurality of sensors attached to the substrate is advantageous because the sensors are configured to detect processing condition by read, store and retrieve conditions registered within each region of the substrate. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus of Seita by adding a plurality of sensors on the substrate as taught by Smesny et al in order to detect processing condition by read, store and retrieve conditions registered within each region of the substrate.

Regarding claim 12, Seita discloses the substrate carrier (100) is a standard substrate carrier [col. 5, lines 1-4].

Regarding claim 13, Seita discloses the substrate carrier (100) is a front opening unified pod (FOUP) [col. 5, lines 1-4].

Regarding claim 14, Seita discloses the substrate carrier (100) is a wafer cassette [col. 5, lines 1-4].

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 45-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Smesny et al (5444637).

Regarding claim 45, Smesny et al disclose a two part apparatus for measuring process conditions within a process chamber, comprising: a first part that includes a plurality of sensors (sensors 12) for measuring one or more process conditions and an energy storage unit (processor with memory 20) attached to a substrate (wafer 10); a second part that includes a housing (chamber 90) for the first part, a power supply unit [see col. 12, lines 14-16] attached to the housing (90) and a communication unit (linear encoders 98) attached to the housing (90), the power supply unit providing power to the first part and the communication unit (98) providing communication between the first part and the second part; and wherein the first part is housed (90) in the second part in a first mode and is moved from the second part to the process chamber, without physical connection to the second part, in a second mode.

Regarding claim 46, Smesny et al disclose the substrate (10) is a disk with the diameter of a silicon wafer and the housing (90) is a wafer holder.

Regarding claim 47, Smesny et al disclose the power supply unit [see col. 12, lines 14-16] inherently has an induction coil that inductively transmits power to the first part.

Regarding claim 48, Smesny et al disclose the communication unit (98) uses the induction coil to provide communication between the first part and the second part.

Regarding claim 49, Smesny et al disclose the communication unit (98) uses light [via photodiode sensor 106 see col. 12, lines 62-66] to communicate with the first part.

Regarding claim 50, Smesny et al disclose the housing is a Standard Mechanical Interface (SMIF) box or a Front Opening Unified POD (FOUP).

Regarding claim 51, Smesny et al disclose an apparatus for measuring conditions in a target environment, comprising: a process condition measuring device (wafer 10) that includes

Art Unit: 2829

sensors (sensors 12) to measure one or more process conditions in the target environment, the process condition measuring device (10) further including a power supply (power supply 16) and a first induction coil; a handling system (chamber 90) including a second induction coil, the handling system (90) having a location to hold the process condition measuring device (10) near the second induction coil (electrode 94), the first and second induction coils being inductively coupled when the process condition measuring device (10) is at the location, the inductive coupling transferring both electrical power and data; and the process condition measuring device (10) being independently movable from the handling system (90) to measure process conditions.

Regarding claim 52, Smesny et al disclose power is transferred from the handling system (90) to the process condition-measuring device (10) through the inductive coupling and data is transferred from the process condition measuring device (10) to the handling system (90) through the inductive coupling.

Regarding claim 53, Smesny et al disclose data is also transferred from the handling system (90) to the process condition-measuring device (10) through the inductive coupling.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kondo et al (6790763 & 6828225), Gershenzon et al (6842025) and Suh et al (6916147) disclose a method and apparatus substrate processing.

8. Claims 4-8 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



Art Unit: 2829

9. The following is a statement of reasons for the indication of allowable subject matter: regarding claim 4, the primary reason for the allowance of the claim is due to a sensing apparatus comprising a receiving unit attached to the substrate that receives power from the electronics module and a transmitting unit in the electronic module that transmits power to the receiving unit. Since claims 5-7 depends off of claim 4, they also have allowable subject matter.

Regarding claim 8, the primary reason for the allowance of the claim is due to the second portion further comprises an RFID transceiver electrically connected to the electronics module so that data may be sent from the electronics module to the RFID transceiver and data may be sent from the RFID transceiver to an external receiver.

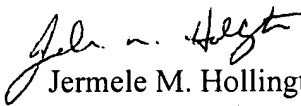
Regarding claim 15, the primary reason for the allowance of the claim is due to the process condition measuring device further includes at least one battery and other components attached to the substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermele M. Hollington whose telephone number is (571) 272-1960. The examiner can normally be reached on M-F (9:00-4:30 EST) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (517) 272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2829

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jermele M. Hollington  
Primary Examiner  
Art Unit 2829

JMH  
August 4, 2005